

CLAIMS

- 1) Lock assembly for sliding door/window panels applicable to a series of frame profiles which in the region where the door/window panel shuts incorporate a vertically oriented protruding part (3) of the fixed frame profile (2) which is introduced into a frontal opening (7) of vertically oriented sliding door/window panel profile (1) which consists of two parallel walls (1a, 1b) and ends to another rear opening (8) into which a glass or shutter door/window panel is attached, characterized by that it comprises:
- a hooking mechanism for the engagement of a hook into a suitably shaped recession of a facing part, said hooking mechanism being automatically activated to take a position of engagement when the sliding door/window panel shuts as said vertically oriented protruding part (3) of the fixed frame profile (2) enters through said frontal opening (7) in between the parallel walls (1a, 1b) of said vertically oriented sliding door/window panel profile part (1) and being also automatically deactivated taking a position of disengagement of said hook from said recession in said facing part when the sliding door/window panel opens as said vertically oriented protruding part (3) bearing the suitably shaped recession of said facing part is withdrawn through said frontal opening (7) of said profile (1), wherein said hooking mechanism features at least one oblong hook profile (21) containing a flat surface (22) with recessions (22a, 22b) on either side thereof for the mounting of a compression spring (20), a centre (27) for rotatable connection of said oblong hook profile (21), a frontal terminal hooking arm (24) adapted for the engagement into said suitably shaped recession of

the facing part, a rear terminal arm (26,26a) for immobilizing said frontal terminal hooking arm (24) in the locked position of engagement within said suitably shaped recession of the facing part and a sliding/rotating arm (25) which, when touching upon the frontal surface of said facing part, activates a rotation of a certain length of arc of said oblong hook profile (21), either in the direction of engagement of said hooking arm (24) into said recession of the facing part when the sliding door/window panel shuts or in the direction of disengagement of said hooking arm (24) from said recession of the facing part, when the sliding door/window panel opens,

at least one vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a, 1b) of said vertically oriented sliding door/window panel profile (1) at a length corresponding to the length of said at least one oblong hook profile (21) and bearing a terminal shaping of a centre for the rotatable connection of said at least one oblong hook profile (21),

a facing part located onto said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal terminal surface (30,40) whereupon collides said sliding/rotating arm (25) to initiate rotation of said at least one oblong hook profile (21), said facing part being adapted to receive said at least one oblong hook profile (21) with at least one vertically extending recession (30a,40a) within which is engaged said frontal terminal hooking arm (24) of said at least one oblong hook profile (21), and

a locking mechanism for immobilizing said frontal terminal hooking arm (24) of said at least one oblong hook profile (21) within

said suitably shaped recession of the facing part, thereby maintaining said frontal terminal hooking arm (24) in the locked position when acting upon said rear terminal arm (26,26a) for immobilizing said frontal terminal hooking arm (24) in the locked position.

2) Lock assembly for sliding door/window panels as claimed in above Claim 1, wherein said locking mechanism for immobilizing said frontal terminal hooking arm (24) of said at least one oblong hook profile (21) within said suitably shaped recession of the facing part, thereby maintaining said frontal terminal hooking arm (24) in the locked position is alternatively selected to comprise:

a locking tongue (33) extending through an opening (32) along the surface separating a frontal chamber (4) of said door/window panel profile (1) from a central chamber (5) thereof wherein is installed the mechanism for the operation of said locking tongue (33) which when being activated via this mechanism performs a rotation of a certain arc length and blocks movement of said rear terminal arm (26,26a) of said at least one oblong hook profile (21) at a position in which said frontal terminal hooking arm (24) is engaged within said at least one vertically extending recession (30a,40a) of the facing part, or

a manually reciprocatingly moving button (50) fitted into an opening at the wall of the frontal chamber (5) of said door/window panel profile (1) which is located opposite to the wall whereupon said at least one oblong hook profile (21) is rotatably connected, said button (50) acting so as to block movement of said rear terminal

arm (26,26a) of said at least one oblong hook profile (21) at a position in which said frontal terminal hooking arm (24) is engaged within said at least one vertically extending recession (30a,40a) of the facing part.

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3) Lock assembly for sliding door/window panels according to the above claim 2, wherein the mechanism for the operation of said locking tongue (33) which initiates rotation of a certain arc length of said locking tongue (33) and blocks movement of said rear terminal arm (26,26a) of said at least one oblong hook profile (21) at a position in which said frontal terminal hooking arm (24) is engaged within said at least one vertically extending recession (30a,40a) of the facing part, comprises:

a main body of internal cover plug means (60) which is fitted onto an opening of the profile (1) in the region of the chamber (5) and contains a rectangular cavity (83) which is covered by a plastic cover (76), said plastic cover (76) featuring a central elevated part (77) and equivalent flat blades (78,79) on either side thereof, wherein said flat blade (78) is reciprocatingly moving up and down tangentially to surface (84) which is located next to said cavity (83);

a button means (80) which consists of a rectangular surface (82) with a rectangular portion (81) onto one side thereof, said rectangular portion (81) bearing recessions (81a) on either side thereof via which it locks into respective protrusions (78a,79a) located at the bottom of said central elevated part (77) of the plastic cover (76), and with an axial pin (86) on the other side of said rectangular surface (82) of the button means (80);

the locking tongue (33) which contains a surface with a groove (91) in the form of a fork with right and left curvilinear legs (91a, 91b) on either side thereof, within which is alternatively introduced said axial pin (86) of the button means (80) so as to alternatively
5 effect a clockwise or anticlockwise rotation of said locking tongue (33) and thereby render the same locking mechanism alternatively suitable for sliding door/window panels shutting either leftwards or rightwards, said locking tongue (33) further comprising a terminal hole (74) through which it is rotatably and off-centre connected on
10 an axial shaft (72) extending underneath said main body of internal cover plug means (60);

a metallic or plastic cover means (66) comprising a central elevated part (67) and equivalent flat blades (68,69) on either side thereof; said locking tongue (33) being mounted within a cavity
15 formed in the region of the elevated part (67), wherein the locking tongue (33) is nailed by means of a nail along said axial shaft (72), as the nail passes through an opening (67a) of the elevated part (67) and wherein said blades (68,69) are provided with holes (68a,69a) respectively for being nailed onto nails (70a, 71a) of the main body
20 of the internal cover plug means (60), and

a main body of external cover plug means (61) positioned into an opening of profile (1) in the region of said chamber (5), exactly opposite the main body of said internal cover plug means (60), said
external cover plug means (61) comprising internally threaded
25 tubular members (63) on either side thereof, a pair of bolts (64) being employed to pass through holes (62) of the main body of said internal cover plug means (60) and subsequently be screwed within

said threaded tubular members (63) of said external cover plug means (61) to render a compact structure of said locking mechanism which acts in response to reciprocating movement of said plastic cover (76) to sequentially render reciprocating movement of said button means (80) which is fixedly mounted onto the plastic cover (76) thereby initiating rotation of a certain arc length of said locking tongue (33) being pushed via said axial pin (86) which tracks the curvilinear path defined by either one of the pair of curvilinear legs (91a, 91b), thereby said locking tongue (33) protruding via said opening (32) into the chamber (4) of the profile (1) wherein said hooking mechanism is installed, so as to block movement of said rear terminal arm (26,26a) and maintain said frontal terminal hooking arm (24) of said at least one oblong hook profile (21) in a position of engagement within said suitably shaped recession of the facing part.

4) Lock assembly for sliding door/window panels according to the above claim 1, wherein said at least one vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b) of said vertically oriented sliding door/window panel profile (1) is alternatively selected to consist of either a formation of a surface (29) perpendicularly oriented onto at least one of said walls (1a,1b) of the frontal chamber (4) of said profile (1) or of an independent profile (48) in which a flat surface (49) is perpendicularly oriented onto at least one of said walls (1a,1b) of the frontal chamber (4) of said profile (1), an angular portion (42a,42b) of said independent profile (48)

being used for mounting said independent profile (48) onto the walls of said profile (1) and wherein said facing part located onto said vertically oriented protruding part (3) of the fixed frame profile (2) is alternatively selected to consist of either a formation onto the
5 frontal surface of said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal surface (30) whereupon collides said sliding/rotating arm (25) to initiate rotation of said at least one oblong hook profile (21) and at least one vertically extending recession (30a) adapted to receive said frontal terminal
10 hooking arm (24) of said at least one oblong hook profile (21) or of an independent profile (43) mounted onto said vertically oriented protruding part (3) of the fixed frame profile (2) and including a frontal surface (40) whereupon collides said sliding/rotating arm
(25) to initiate rotation of said at least one oblong hook profile (21)
15 and at least one vertically extending recession (40a) adapted to receive said frontal terminal hooking arm (24) of said at least one oblong hook profile (21).

5) Lock assembly for sliding door/window panels according to
20 the above claim 4, said lock assembly being adapted to operate as a device of unilateral locking comprising a single oblong hook profile (21) rotatably connected to a single vertically extending flat surface protruding at right angles from the interior surface of one of said parallel walls (1a,1b) of said vertically oriented sliding door/window
25 panel profile (1) and alternatively selected to consist of either a formation of a surface (29) perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1) or of

an independent profile (48) in which a flat surface (49) is perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1), and cooperating with a facing part located onto the vertically oriented protruding part (3) of the fixed frame profile (2) and alternatively selected to consist of either a formation onto the frontal surface of said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal surface (30) whereupon collides said sliding/rotating arm (25) to initiate rotation of said at least one oblong hook profile (21) and one vertically extending recession (30a) adapted to receive said frontal terminal hooking arm (24) of said oblong hook profile (21) or of an independent profile (43) mounted onto said vertically oriented protruding part (3) of the fixed frame profile (2) and including a frontal surface (40) whereupon collides said sliding/rotating arm (25) to initiate rotation of said oblong hook profile (21) and one vertically extending recession (40a) adapted to receive said frontal terminal hooking arm (24) of said oblong hook profile (21).

6) Lock assembly for sliding door/window panels according to the above claim 4, said lock assembly being adapted to operate as a device of bilateral locking comprising a pair of oblong hook profiles (21) rotatably connected, one opposite to the other, to vertically extending flat surfaces protruding at right angles from the interior surface of said two parallel walls (1a,1b) of said vertically oriented sliding door/window panel profile (1), each one of said vertically extending flat surfaces protruding at right angles from the interior surface of said two parallel walls (1a,1b) being alternatively selected

to consist of either a formation of a surface (29) perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1) or of an independent profile (48) in which a flat surface (49) is perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1), and cooperating with a facing part located onto the vertically oriented protruding part (3) of the fixed frame profile (2) and alternatively selected to consist of either a formation onto the frontal surface of said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal surface (30) whereupon collide said sliding/rotating arms (25) to initiate rotation of said pair of oblong hook profiles (21) and a pair of vertically extending recessions (30a,30b) adapted to correspondingly receive said frontal terminal hooking arms (24) of said pair of oblong hook profiles (21) or of an independent profile (43) mounted onto said vertically oriented protruding part (3) of the fixed frame profile (2) and including a frontal surface (40) whereupon collide said sliding/rotating arms (25) to initiate rotation of said pair of oblong hook profiles (21) and a pair of vertically extending recessions (40a,40b) adapted to receive said frontal terminal hooking arms (24) of said pair of oblong hook profiles (21).

7. Lock assembly for sliding door/window panels according to the above claim 1, wherein rotatable connection of said at least one oblong hook profile (21) to said at least one vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b) is alternatively selected to be

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effected either with said centre (27) for rotatable connection of said oblong hook profile (21) being a cylindrical shaft (27b) fitted within a correspondingly dimensioned receiving recession (31a) of said terminal shaping of a centre for the rotatable connection of the oblong hook profile at said vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b) or with said centre (27) for rotatable connection of said oblong hook profile (21) being a cylindrical recession (27a) which receives a correspondingly dimensioned cylindrical shaft (31) of said terminal shaping of a centre for the rotatable connection of the oblong hook profile at said vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b).

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Locking devices of the prior art are among others known from U.S. Pat. No. 4 995 649 (Magnusson) and FR Pat. No. 2 367 892 (Aubin).

5 Magnusson discloses a locking device for sliding panels, primarily intended for use with yacht hatches, comprising a lock assembly being received in a housing mounted in a recess in an edge of a sliding panel, where the lock assembly contacts a closure member which bears a latch member. This locking device is adapted to be mounted completely flush with the panel to effect positive self-locking latching upon closing of the sliding panel, whilst it provides a handle means by the movement of
10 which unlatching and opening of the sliding panel is made possible.

Aubin discloses a latching device for sliding panels of the type in which the facing part of the latching device is being formed at a protruding member of the fixed frame profile which during closure of the sliding panel enters through a frontal opening of the vertically extending
15 sliding panel profile to receive a locking tongue member operated from the latching device embodied in the sliding panel profile.

Locking devices of the prior art are among others known from U.S. Pat. No. 4 995 649 (Magnusson) and FR Pat. No. 2 367 892 (Aubin).

Magnusson discloses a locking device for sliding panels, primarily intended for use with yacht hatches, comprising a lock assembly being
5 received in a housing mounted in a recess in an edge of a sliding panel, where the lock assembly contacts a closure member which bears a latch member. This locking device is adapted to be mounted completely flush with the panel to effect positive self-locking latching upon closing of the sliding panel, whilst it provides a handle means by the movement of
10 which unlatching and opening of the sliding panel is made possible.

Aubin discloses a latching device for sliding panels of the type in which the facing part of the latching device is being formed at a protruding member of the fixed frame profile which during closure of the sliding panel enters through a frontal opening of the vertically extending
15 sliding panel profile to receive a locking tongue member operated from the latching device embodied in the sliding panel profile.

CLAIMS

- 1) Lock assembly for sliding door/window panels applicable to a series of frame profiles which in the region where the door/window panel shuts incorporate a vertically oriented protruding part (3) of the fixed frame profile (2) which is introduced into a frontal opening (7) of vertically oriented sliding door/window panel profile (1) which consists of two parallel walls (1a, 1b) and ends to another rear opening (8) into which a glass or shutter door/window panel is attached, characterized by that it comprises:
- a hooking mechanism for the engagement of a hook into a suitably shaped recession of a facing part, said hooking mechanism being automatically activated to take a position of engagement when the sliding door/window panel shuts as said vertically oriented protruding part (3) of the fixed frame profile (2) enters through said frontal opening (7) in between the parallel walls (1a, 1b) of said vertically oriented sliding door/window panel profile part (1) and being also automatically deactivated taking a position of disengagement of said hook from said recession in said facing part when the sliding door/window panel opens as said vertically oriented protruding part (3) bearing the suitably shaped recession of said facing part is withdrawn through said frontal opening (7) of said profile (1), wherein said hooking mechanism features at least one oblong hook profile (21) containing a flat surface (22) with recessions (22a, 22b) on either side thereof for the mounting of a compression spring (20), a centre (27) for rotatable connection of said oblong hook profile (21), a frontal terminal hooking arm (24) adapted for the engagement into said suitably shaped recession of

the facing part, a rear terminal arm (26,26a) for immobilizing said frontal terminal hooking arm (24) in the locked position of engagement within said suitably shaped recession of the facing part and a sliding/rotating arm (25) which, when touching upon the frontal surface of said facing part, activates a rotation of a certain length of arc of said oblong hook profile (21), either in the direction of engagement of said hooking arm (24) into said recession of the facing part when the sliding door/window panel shuts or in the direction of disengagement of said hooking arm (24) from said recession of the facing part, when the sliding door/window panel opens,

at least one vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a, 1b) of said vertically oriented sliding door/window panel profile (1) at a length corresponding to the length of said at least one oblong hook profile (21) and bearing a terminal shaping of a centre for the rotatable connection of said at least one oblong hook profile (21),

a facing part located onto said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal terminal surface (30,40) whereupon collides said sliding/rotating arm (25) to initiate rotation of said at least one oblong hook profile (21), said facing part being adapted to receive said at least one oblong hook profile (21) with at least one vertically extending recession (30a,40a) within which is engaged said frontal terminal hooking arm (24) of said at least one oblong hook profile (21), and

a locking mechanism for immobilizing said frontal terminal hooking arm (24) of said at least one oblong hook profile (21) within

said suitably shaped recession of the facing part, thereby maintaining said frontal terminal hooking arm (24) in the locked position when acting upon said rear terminal arm (26,26a) for immobilizing said frontal terminal hooking arm (24) in the locked
5 position.

2) Lock assembly for sliding door/window panels as claimed in above Claim 1, wherein said locking mechanism for immobilizing said frontal terminal hooking arm (24) of said at least one oblong
10 hook profile (21) within said suitably shaped recession of the facing part, thereby maintaining said frontal terminal hooking arm (24) in the locked position is alternatively selected to comprise:

a locking tongue (33) extending through an opening (32) along the surface separating a frontal chamber (4) of said
15 door/window panel profile (1) from a central chamber (5) thereof wherein is installed the mechanism for the operation of said locking tongue (33) which when being activated via this mechanism performs a rotation of a certain arc length and blocks movement of said rear terminal arm (26,26a) of said at least one oblong hook
20 profile (21) at a position in which said frontal terminal hooking arm (24) is engaged within said at least one vertically extending recession (30a,40a) of the facing part, or

a manually reciprocatingly moving button (50) fitted into an opening at the wall of the frontal chamber (5) of said door/window
25 panel profile (1) which is located opposite to the wall whereupon said at least one oblong hook profile (21) is rotatably connected, said button (50) acting so as to block movement of said rear terminal

arm (26,26a) of said at least one oblong hook profile (21) at a position in which said frontal terminal hooking arm (24) is engaged within said at least one vertically extending recession (30a,40a) of the facing part.

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3) Lock assembly for sliding door/window panels according to the above claim 2, wherein the mechanism for the operation of said locking tongue (33) which initiates rotation of a certain arc length of said locking tongue (33) and blocks movement of said rear terminal arm (26,26a) of said at least one oblong hook profile (21) at a position in which said frontal terminal hooking arm (24) is engaged within said at least one vertically extending recession (30a,40a) of the facing part, comprises:

a main body of internal cover plug means (60) which is fitted onto an opening of the profile (1) in the region of the chamber (5) and contains a rectangular cavity (83) which is covered by a plastic cover (76), said plastic cover (76) featuring a central elevated part (77) and equivalent flat blades (78,79) on either side thereof, wherein said flat blade (78) is reciprocatingly moving up and down tangentially to surface (84) which is located next to said cavity (83);

a button means (80) which consists of a rectangular surface (82) with a rectangular portion (81) onto one side thereof, said rectangular portion (81) bearing recessions (81a) on either side thereof via which it locks into respective protrusions (78a,79a) located at the bottom of said central elevated part (77) of the plastic cover (76), and with an axial pin (86) on the other side of said rectangular surface (82) of the button means (80);

the locking tongue (33) which contains a surface with a groove (91) in the form of a fork with right and left curvilinear legs (91a, 91b) on either side thereof, within which is alternatively introduced said axial pin (86) of the button means (80) so as to alternatively effect a clockwise or anticlockwise rotation of said locking tongue (33) and thereby render the same locking mechanism alternatively suitable for sliding door/window panels shutting either leftwards or rightwards, said locking tongue (33) further comprising a terminal hole (74) through which it is rotatably and off-centre connected on an axial shaft (72) extending underneath said main body of internal cover plug means (60);

a metallic or plastic cover means (66) comprising a central elevated part (67) and equivalent flat blades (68,69) on either side thereof, said locking tongue (33) being mounted within a cavity formed in the region of the elevated part (67), wherein the locking tongue (33) is nailed by means of a nail along said axial shaft (72), as the nail passes through an opening (67a) of the elevated part (67) and wherein said blades (68,69) are provided with holes (68a,69a) respectively for being nailed onto nails (70a, 71a) of the main body of the internal cover plug means (60), and

a main body of external cover plug means (61) positioned into an opening of profile (1) in the region of said chamber (5), exactly opposite the main body of said internal cover plug means (60), said external cover plug means (61) comprising internally threaded tubular members (63) on either side thereof, a pair of bolts (64) being employed to pass through holes (62) of the main body of said internal cover plug means (60) and subsequently be screwed within

said threaded tubular members (63) of said external cover plug means (61) to render a compact structure of said locking mechanism which acts in response to reciprocating movement of said plastic cover (76) to sequentially render reciprocating movement of said button means (80) which is fixedly mounted onto the plastic cover (76) thereby initiating rotation of a certain arc length of said locking tongue (33) being pushed via said axial pin (86) which tracks the curvilinear path defined by either one of the pair of curvilinear legs (91a, 91b), thereby said locking tongue (33) protruding via said opening (32) into the chamber (4) of the profile (1) wherein said hooking mechanism is installed, so as to block movement of said rear terminal arm (26,26a) and maintain said frontal terminal hooking arm (24) of said at least one oblong hook profile (21) in a position of engagement within said suitably shaped recession of the facing part.

4) Lock assembly for sliding door/window panels according to the above claim 1, wherein said at least one vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b) of said vertically oriented sliding door/window panel profile (1) is alternatively selected to consist of either a formation of a surface (29) perpendicularly oriented onto at least one of said walls (1a,1b) of the frontal chamber (4) of said profile (1) or of an independent profile (48) in which a flat surface (49) is perpendicularly oriented onto at least one of said walls (1a,1b) of the frontal chamber (4) of said profile (1), an angular portion (42a,42b) of said independent profile (48)

being used for mounting said independent profile (48) onto the walls of said profile (1) and wherein said facing part located onto said vertically oriented protruding part (3) of the fixed frame profile (2) is alternatively selected to consist of either a formation onto the frontal surface of said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal surface (30) whereupon collides said sliding/rotating arm (25) to initiate rotation of said at least one oblong hook profile (21) and at least one vertically extending recession (30a) adapted to receive said frontal terminal hooking arm (24) of said at least one oblong hook profile (21) or of an independent profile (43) mounted onto said vertically oriented protruding part (3) of the fixed frame profile (2) and including a frontal surface (40) whereupon collides said sliding/rotating arm (25) to initiate rotation of said at least one oblong hook profile (21) and at least one vertically extending recession (40a) adapted to receive said frontal terminal hooking arm (24) of said at least one oblong hook profile (21).

5) Lock assembly for sliding door/window panels according to the above claim 4, said lock assembly being adapted to operate as a device of unilateral locking comprising a single oblong hook profile (21) rotatably connected to a single vertically extending flat surface protruding at right angles from the interior surface of one of said parallel walls (1a,1b) of said vertically oriented sliding door/window panel profile (1) and alternatively selected to consist of either a formation of a surface (29) perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1) or of

an independent profile (48) in which a flat surface (49) is perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1), and cooperating with a facing part located onto the vertically oriented protruding part (3) of the fixed frame profile (2) and alternatively selected to consist of either a formation onto the frontal surface of said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal surface (30) whereupon collides said sliding/rotating arm (25) to initiate rotation of said at least one oblong hook profile (21) and one vertically extending recession (30a) adapted to receive said frontal terminal hooking arm (24) of said oblong hook profile (21) or of an independent profile (43) mounted onto said vertically oriented protruding part (3) of the fixed frame profile (2) and including a frontal surface (40) whereupon collides said sliding/rotating arm (25) to initiate rotation of said oblong hook profile (21) and one vertically extending recession (40a) adapted to receive said frontal terminal hooking arm (24) of said oblong hook profile (21).

6) Lock assembly for sliding door/window panels according to the above claim 4, said lock assembly being adapted to operate as a device of bilateral locking comprising a pair of oblong hook profiles (21) rotatably connected, one opposite to the other, to vertically extending flat surfaces protruding at right angles from the interior surface of said two parallel walls (1a,1b) of said vertically oriented sliding door/window panel profile (1), each one of said vertically extending flat surfaces protruding at right angles from the interior surface of said two parallel walls (1a,1b) being alternatively selected

to consist of either a formation of a surface (29) perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1) or of an independent profile (48) in which a flat surface (49) is perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1), and cooperating with a facing part located onto the vertically oriented protruding part (3) of the fixed frame profile (2) and alternatively selected to consist of either a formation onto the frontal surface of said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal surface (30) whereupon collide said sliding/rotating arms (25) to initiate rotation of said pair of oblong hook profiles (21) and a pair of vertically extending recessions (30a,30b) adapted to correspondingly receive said frontal terminal hooking arms (24) of said pair of oblong hook profiles (21) or of an independent profile (43) mounted onto said vertically oriented protruding part (3) of the fixed frame profile (2) and including a frontal surface (40) whereupon collide said sliding/rotating arms (25) to initiate rotation of said pair of oblong hook profiles (21) and a pair of vertically extending recessions (40a,40b) adapted to receive said frontal terminal hooking arms (24) of said pair of oblong hook profiles (21).

7. Lock assembly for sliding door/window panels according to the above claim 1, wherein rotatable connection of said at least one oblong hook profile (21) to said at least one vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b) is alternatively selected to be

effected either with said centre (27) for rotatable connection of said oblong hook profile (21) being a cylindrical shaft (27b) fitted within a correspondingly dimensioned receiving recession (31a) of said terminal shaping of a centre for the rotatable connection of the oblong hook profile at said vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b) or with said centre (27) for rotatable connection of said oblong hook profile (21) being a cylindrical recession (27a) which receives a correspondingly dimensioned cylindrical shaft (31) of said terminal shaping of a centre for the rotatable connection of the oblong hook profile at said vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b).

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Magnusson discloses a locking device for sliding panels, primarily intended for use with yacht hatches, comprising a lock assembly being
5 received in a housing mounted in a recess in an edge of a sliding panel, where the lock assembly contacts a closure member which bears a latch member. This locking device is adapted to be mounted completely flush with the panel to effect positive self-locking latching upon closing of the sliding panel, whilst it provides a handle means by the movement of
10 which unlatching and opening of the sliding panel is made possible.

Aubin discloses a latching device for sliding panels of the type in which the facing part of the latching device is being formed at a protruding member of the fixed frame profile which during closure of the sliding panel enters through a frontal opening of the vertically extending
15 sliding panel profile to receive a locking tongue member operated from the latching device embodied in the sliding panel profile.

CLAIMS

- 1) Lock assembly for sliding door/window panels applicable to a series of frame profiles which in the region where the door/window panel shuts incorporate a vertically oriented protruding part (3) of the fixed frame profile (2) which is introduced into a frontal opening (7) of vertically oriented sliding door/window panel profile (1) which consists of two parallel walls (1a, 1b) and ends to another rear opening (8) into which a glass or shutter door/window panel is attached, characterized by that it comprises:
- a hooking mechanism for the engagement of a hook into a suitably shaped recession of a facing part, said hooking mechanism being automatically activated to take a position of engagement when the sliding door/window panel shuts as said vertically oriented protruding part (3) of the fixed frame profile (2) enters through said frontal opening (7) in between the parallel walls (1a, 1b) of said vertically oriented sliding door/window panel profile part (1) and being also automatically deactivated taking a position of disengagement of said hook from said recession in said facing part when the sliding door/window panel opens as said vertically oriented protruding part (3) bearing the suitably shaped recession of said facing part is withdrawn through said frontal opening (7) of said profile (1), wherein said hooking mechanism features at least one oblong hook profile (21) containing a flat surface (22) with recessions (22a, 22b) on either side thereof for the mounting of a compression spring (20), a centre (27) for rotatable connection of said oblong hook profile (21), a frontal terminal hooking arm (24) adapted for the engagement into said suitably shaped recession of

the facing part, a rear terminal arm (26,26a) for immobilizing said frontal terminal hooking arm (24) in the locked position of engagement within said suitably shaped recession of the facing part and a sliding/rotating arm (25) which, when touching upon the
5 frontal surface of said facing part, activates a rotation of a certain length of arc of said oblong hook profile (21), either in the direction of engagement of said hooking arm (24) into said recession of the facing part when the sliding door/window panel shuts or in the direction of disengagement of said hooking arm (24) from said
10 recession of the facing part, when the sliding door/window panel opens,

at least one vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a, 1b) of said vertically oriented sliding door/window panel profile
15 (1) at a length corresponding to the length of said at least one oblong hook profile (21) and bearing a terminal shaping of a centre for the rotatable connection of said at least one oblong hook profile (21),

a facing part located onto said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal terminal surface (30,40) whereupon collides said sliding/rotating arm (25) to
20 initiate rotation of said at least one oblong hook profile (21), said facing part being adapted to receive said at least one oblong hook profile (21) with at least one vertically extending recession (30a,40a) within which is engaged said frontal terminal hooking arm (24) of
25 said at least one oblong hook profile (21), and

a locking mechanism for immobilizing said frontal terminal hooking arm (24) of said at least one oblong hook profile (21) within

said suitably shaped recession of the facing part, thereby maintaining said frontal terminal hooking arm (24) in the locked position when acting upon said rear terminal arm (26,26a) for immobilizing said frontal terminal hooking arm (24) in the locked position.

2) Lock assembly for sliding door/window panels as claimed in above Claim 1, wherein said locking mechanism for immobilizing said frontal terminal hooking arm (24) of said at least one oblong hook profile (21) within said suitably shaped recession of the facing part, thereby maintaining said frontal terminal hooking arm (24) in the locked position is alternatively selected to comprise:

a locking tongue (33) extending through an opening (32) along the surface separating a frontal chamber (4) of said door/window panel profile (1) from a central chamber (5) thereof wherein is installed the mechanism for the operation of said locking tongue (33) which when being activated via this mechanism performs a rotation of a certain arc length and blocks movement of said rear terminal arm (26,26a) of said at least one oblong hook profile (21) at a position in which said frontal terminal hooking arm (24) is engaged within said at least one vertically extending recession (30a,40a) of the facing part, or

a manually reciprocatingly moving button (50) fitted into an opening at the wall of the frontal chamber (5) of said door/window panel profile (1) which is located opposite to the wall whereupon said at least one oblong hook profile (21) is rotatably connected, said button (50) acting so as to block movement of said rear terminal

arm (26,26a) of said at least one oblong hook profile (21) at a position in which said frontal terminal hooking arm (24) is engaged within said at least one vertically extending recession (30a,40a) of the facing part.

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3) ¹⁶ Lock assembly for sliding door/window panels according to the above claim 2, wherein the mechanism for the operation of said locking tongue (33) which initiates rotation of a certain arc length of said locking tongue (33) and blocks movement of said rear terminal arm (26,26a) of said at least one oblong hook profile (21) at a position in which said frontal terminal hooking arm (24) is engaged within said at least one vertically extending recession (30a,40a) of the facing part, comprises:

15 a main body of internal cover plug means (60) which is fitted onto an opening of the profile (1) in the region of the chamber (5) and contains a rectangular cavity (83) which is covered by a plastic cover (76), said plastic cover (76) featuring a central elevated part (77) and equivalent flat blades (78,79) on either side thereof, wherein said flat blade (78) is reciprocatingly moving up and down tangentially to surface (84) which is located next to said cavity (83);

20 a button means (80) which consists of a rectangular surface (82) with a rectangular portion (81) onto one side thereof, said rectangular portion (81) bearing recessions (81a) on either side thereof via which it locks into respective protrusions (78a,79a) located at the bottom of said central elevated part (77) of the plastic cover (76), and with an axial pin (86) on the other side of said rectangular surface (82) of the button means (80);

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the locking tongue (33) which contains a surface with a groove (91) in the form of a fork with right and left curvilinear legs (91a, 91b) on either side thereof, within which is alternatively introduced said axial pin (86) of the button means (80) so as to alternatively effect a clockwise or anticlockwise rotation of said locking tongue (33) and thereby render the same locking mechanism alternatively suitable for sliding door/window panels shutting either leftwards or rightwards, said locking tongue (33) further comprising a terminal hole (74) through which it is rotatably and off-centre connected on an axial shaft (72) extending underneath said main body of internal cover plug means (60);

a metallic or plastic cover means (66) comprising a central elevated part (67) and equivalent flat blades (68,69) on either side thereof, said locking tongue (33) being mounted within a cavity formed in the region of the elevated part (67), wherein the locking tongue (33) is nailed by means of a nail along said axial shaft (72), as the nail passes through an opening (67a) of the elevated part (67) and wherein said blades (68,69) are provided with holes (68a,69a) respectively for being nailed onto nails (70a, 71a) of the main body of the internal cover plug means (60), and

a main body of external cover plug means (61) positioned into an opening of profile (1) in the region of said chamber (5), exactly opposite the main body of said internal cover plug means (60), said external cover plug means (61) comprising internally threaded tubular members (63) on either side thereof, a pair of bolts (64) being employed to pass through holes (62) of the main body of said internal cover plug means (60) and subsequently be screwed within

said threaded tubular members (63) of said external cover plug means (61) to render a compact structure of said locking mechanism which acts in response to reciprocating movement of said plastic cover (76) to sequentially render reciprocating movement of said button means (80) which is fixedly mounted onto the plastic cover (76) thereby initiating rotation of a certain arc length of said locking tongue (33) being pushed via said axial pin (86) which tracks the curvilinear path defined by either one of the pair of curvilinear legs (91a, 91b), thereby said locking tongue (33) protruding via said opening (32) into the chamber (4) of the profile (1) wherein said hooking mechanism is installed, so as to block movement of said rear terminal arm (26,26a) and maintain said frontal terminal hooking arm (24) of said at least one oblong hook profile (21) in a position of engagement within said suitably shaped recession of the facing part.

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- 4) Lock assembly for sliding door/window panels according to the above claim 1, wherein said at least one vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b) of said vertically oriented sliding door/window panel profile (1) is alternatively selected to consist of either a formation of a surface (29) perpendicularly oriented onto at least one of said walls (1a,1b) of the frontal chamber (4) of said profile (1) or of an independent profile (48) in which a flat surface (49) is perpendicularly oriented onto at least one of said walls (1a,1b) of the frontal chamber (4) of said profile (1), an angular portion (42a,42b) of said independent profile (48)

being used for mounting said independent profile (48) onto the walls of said profile (1) and wherein said facing part located onto said vertically oriented protruding part (3) of the fixed frame profile (2) is alternatively selected to consist of either a formation onto the frontal surface of said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal surface (30) whereupon collides said sliding/rotating arm (25) to initiate rotation of said at least one oblong hook profile (21) and at least one vertically extending recession (30a) adapted to receive said frontal terminal hooking arm (24) of said at least one oblong hook profile (21) or of an independent profile (43) mounted onto said vertically oriented protruding part (3) of the fixed frame profile (2) and including a frontal surface (40) whereupon collides said sliding/rotating arm (25) to initiate rotation of said at least one oblong hook profile (21) and at least one vertically extending recession (40a) adapted to receive said frontal terminal hooking arm (24) of said at least one oblong hook profile (21).

5) Lock assembly for sliding door/window panels according to the above claim 4, said lock assembly being adapted to operate as a device of unilateral locking comprising a single oblong hook profile (21) rotatably connected to a single vertically extending flat surface protruding at right angles from the interior surface of one of said parallel walls (1a,1b) of said vertically oriented sliding door/window panel profile (1) and alternatively selected to consist of either a formation of a surface (29) perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1) or of

an independent profile (48) in which a flat surface (49) is perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1), and cooperating with a facing part located onto the vertically oriented protruding part (3) of the fixed frame profile (2) and alternatively selected to consist of either a formation onto the frontal surface of said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal surface (30) whereupon collides said sliding/rotating arm (25) to initiate rotation of said at least one oblong hook profile (21) and one vertically extending recession (30a) adapted to receive said frontal terminal hooking arm (24) of said oblong hook profile (21) or of an independent profile (43) mounted onto said vertically oriented protruding part (3) of the fixed frame profile (2) and including a frontal surface (40) whereupon collides said sliding/rotating arm (25) to initiate rotation of said oblong hook profile (21) and one vertically extending recession (40a) adapted to receive said frontal terminal hooking arm (24) of said oblong hook profile (21).

6) Lock assembly for sliding door/window panels according to the above claim 4, said lock assembly being adapted to operate as a device of bilateral locking comprising a pair of oblong hook profiles (21) rotatably connected, one opposite to the other, to vertically extending flat surfaces protruding at right angles from the interior surface of said two parallel walls (1a,1b) of said vertically oriented sliding door/window panel profile (1), each one of said vertically extending flat surfaces protruding at right angles from the interior surface of said two parallel walls (1a,1b) being alternatively selected

to consist of either a formation of a surface (29) perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1) or of an independent profile (48) in which a flat surface (49) is perpendicularly oriented onto one of said walls (1a,1b) of the frontal chamber (4) of said profile (1), and cooperating with a facing part located onto the vertically oriented protruding part (3) of the fixed frame profile (2) and alternatively selected to consist of either a formation onto the frontal surface of said vertically oriented protruding part (3) of the fixed frame profile (2) including a frontal surface (30) whereupon collide said sliding/rotating arms (25) to initiate rotation of said pair of oblong hook profiles (21) and a pair of vertically extending recessions (30a,30b) adapted to correspondingly receive said frontal terminal hooking arms (24) of said pair of oblong hook profiles (21) or of an independent profile (43) mounted onto said vertically oriented protruding part (3) of the fixed frame profile (2) and including a frontal surface (40) whereupon collide said sliding/rotating arms (25) to initiate rotation of said pair of oblong hook profiles (21) and a pair of vertically extending recessions (40a,40b) adapted to receive said frontal terminal hooking arms (24) of said pair of oblong hook profiles (21).

7. Lock assembly for sliding door/window panels according to the above claim 1, wherein rotatable connection of said at least one oblong hook profile (21) to said at least one vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b) is alternatively selected to be

effected either with said centre (27) for rotatable connection of said oblong hook profile (21) being a cylindrical shaft (27b) fitted within a correspondingly dimensioned receiving recession (31a) of said terminal shaping of a centre for the rotatable connection of the oblong hook profile at said vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b) or with said centre (27) for rotatable connection of said oblong hook profile (21) being a cylindrical recession (27a) which receives a correspondingly dimensioned cylindrical shaft (31) of said terminal shaping of a centre for the rotatable connection of the oblong hook profile at said vertically extending flat surface protruding at right angles from the interior surface of at least one of said parallel walls (1a,1b).

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